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EXAMINER

KESSLER, CHRISTOPHER S

ART UNIT

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1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,413	Applicant(s) NAKAI ET AL.	
	Examiner CHRISTOPHER KESSLER	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 9 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/12/07; 8/10/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-19, in the reply filed on 30 December 2009 is acknowledged.

Claims 20 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 30 December 2009.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The disclosure is objected to because of the following informalities: the reference to Fig. 4 on p. 15, line 16 is in error.

Tables 1, 2 and 3 list the average ejecting pressure in units of kN. It is unclear how a pressure could be measured in units of kN. One of ordinary skill in the art would not recognize N as a unit of pressure.

Appropriate correction is required.

Claim Objections

4. Claim 9 is objected to because of the following informalities: claim 9 contains an obvious typographical error. Appropriate correction is required.

Claim 17 is objected to because of the following informalities: claim 17 is poorly worded and grammatically incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 6 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent document 09-272901 (English translation attached),

Art Unit: 1793

hereinafter "Harada," in view of U.S. Patent 6,169,059 issued to Skiles et al. (hereinafter "Skiles").

Regarding claim 1, Harada teaches the invention substantially as claimed.

Harada teaches a method of power molding (see title). Harada teaches that in the method, the powder to be molded and the molding die are heated, and a lubricant is coated onto the die (see [0007]). Harada teaches that the molding portion of the die is filled with a raw powder and that punches are fitted into the molding portion (see [0018]-[0022] and Figures 1, 2, and 3). Harada teaches that the die is lubricated by dispersing or dissolving a solid lubricant in a solvent such as water (see [0016]). Harada teaches that the lubricant is applied to the molding die by spraying the liquid onto the heated die (see [0019], Figures 1 and 3). Harada teaches that due to the heating of the mold, the fluid in the sprayed lubricant quickly evaporates, leaving a lubricant film on the die (see [0023]-[0024]).

Harada does not teach wherein the lubricant is a water soluble lubricant with at least 3 g of solubility for 100g of water at 20° C. Harada does not teach wherein the layer or film formed on the surface of the molding portion is crystallized. Harada does not specify the solubility of any lubricants or the crystallinity of any film.

Skiles teaches a high-temperature water based lubricant. Skiles teaches that the lubricant comprises water, borax, dextrin, and graphite (see col. 2). Skiles teaches that the water is meant to evaporate after delivering the solid components (see col. 2). Skiles teaches that the lubricant composition is suitable for use as a die lubricant or mold release in hot operations (see col. 4).

Art Unit: 1793

It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Harada, and to have used the liquid lubricant of Skiles, because Skiles teaches that the lubricant composition is suitable for use as a die lubricant in hot operation (see col. 4).

Regarding the limitations of the solubility of the lubricant, Skiles teaches that the solubility of the dextrin is greater than 90% (see col. 2), thus meeting the limitation of the claim. Also, Skiles teaches that the lubricant comprises borax, which also meets the limitation of the claim regarding solubility. Applicant is further directed to MPEP 2112.01.

Regarding the crystallinity of the film, formed, the film formed on the die would have had the claimed crystallinity, at least due to the presence of graphite and/or borax, both known as highly crystalline materials. Applicant is further directed to MPEP 2112.01.

Regarding claim 2, Skiles teaches that the lubricant contains sodium tetraborate decahydrate (see col. 2), meeting the limitation of an oxo acid based metal salt.

Regarding claim 3, Skiles teaches that the lubricant contains sodium tetraborate decahydrate (see col. 2), meeting the limitation of a borate metal salt.

Regarding claim 6, Skiles teaches that the lubricant contains sodium tetraborate decahydrate (see col. 2), meeting the limitation of a sodium tetraborate.

Regarding claim 12, Skiles teaches that the lubricant contains borax and dextrin (see col. 2), meeting the limitation of using at least two lubricants.

Art Unit: 1793

Regarding claim 13, Skiles teaches that the borax is dissolved in the water (see cols. 3-4). Skiles teaches that the borax is present in amounts of 0.1-1.0% (see col. 2), thus overlapping the claimed range and establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected an amount of borax in the range as claimed because Skiles teaches the same utility over an overlapping range. Applicant is further directed to MPEP 2144.05.

Regarding claim 14, Skiles teaches that the lubricant contains sodium tetraborate decahydrate (see col. 2), meeting the limitation of a sodium salt.

Regarding claim 15, Skiles teaches that an antiseptic (preservative) is added to the lubricant (see col. 2).

Regarding claim 16, Harada in view of Skiles does not teach wherein a defoaming agent is added. However, the use of defoaming agents in a chemical mixture is not new or innovative. The examiner takes Official notice that it would have been obvious to one of ordinary skill in the art at time of invention to have added a defoaming agent to the composition in order to prevent foaming and improve homogeneity of the mixture during mixing. Applicant is further directed to MPEP 2144.03.

Regarding claims 17-18, Harada teaches that the solvent used could be either water or alcohol (see [0016]). Thus it would have been obvious to one of ordinary skill in the art at time of invention to have used a mixture of water and alcohol as the solvent,

Art Unit: 1793

because Harada teaches that they are functional equivalents. Alcohol meets the limitation of a water soluble solvent. Applicant is further directed to MPEP 2144.06.

Alternatively, Skiles teaches that the composition may include one or more solvents such as water or other hydrocarbons (see col. 4). Thus, the use of an alcohol such as a methanol or ethanol would have been obvious to one of ordinary skill in the art as the most simple species in the genus of hydrocarbon solvents.

Regarding claim 19, neither Harada nor Skiles teaches that a halogen element should be included. Thus, the disclosures of each of these references would have led one of ordinary skill in the art to have excluded a halogen element.

7. Claims 1-3, 5-7, 10 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent document 09-272901 (English translation attached), hereinafter "Harada," in view of WO 97/48783 (hereinafter "Murata").

Regarding claim 1, Harada teaches the invention substantially as claimed. Harada teaches a method of power molding (see title). Harada teaches that in the method, the powder to be molded and the molding die are heated, and a lubricant is coated onto the die (see [0007]). Harada teaches that the molding portion of the die is filled with a raw powder and that punches are fitted into the molding portion (see [0018]-[0022] and Figures 1, 2, and 3). Harada teaches that the die is lubricated by dispersing or dissolving a solid lubricant in a solvent such as water (see [0016]). Harada teaches that the lubricant is applied to the molding die by spraying the liquid onto the heated die (see [0019], Figures 1 and 3). Harada teaches that due to the heating of the mold, the

Art Unit: 1793

fluid in the sprayed lubricant quickly evaporates, leaving a lubricant film on the die (see [0023]-[0024]).

Harada does not teach wherein the lubricant is a water soluble lubricant with at least 3 g of solubility for 100g of water at 20° C. Harada does not teach wherein the layer or film formed on the surface of the molding portion is crystallized. Harada does not specify the solubility of any lubricants or the crystallinity of any film.

Murata teaches a waterborne lubricant used for working metals (see p. 1). Murata teaches that the lubricant can be used to coat and lubricate tooling for metal working (see pp. 2-3). Murata teaches that the water borne lubricant comprises water and an inorganic salt (see p. 3). Murata teaches that the inorganic salt may comprise any water-soluble inorganic salt that forms a suitable coating, such as sodium tetraborate or sodium sulfate (see pp.4-5). Murata teaches that the special composition of the lubricant reduces the friction between the workpiece and the tool to reduce seizure (see p. 11).

It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Harada, and to have used the liquid lubricant of Murata, because Murata teaches that the lubricant composition reduces the friction between the workpiece and the tool to reduce seizure (see p. 11).

Regarding the limitations of the solubility of the lubricant, Murata teaches that the lubricant may comprise sodium tetraborate or sodium sulfate (see pp.4-5), which meets the limitation of the claim regarding solubility. Applicant is further directed to MPEP 2112.01.

Regarding the crystallinity of the film, formed, the film formed on the die would have had the claimed crystallinity, at least due to the presence of sodium tetraborate or sodium sulfate, both known as highly crystalline materials. Applicant is further directed to MPEP 2112.01.

Regarding claim 2, Murata teaches that the lubricant contains sodium tetraborate or sodium sulfate (see pp. 4-5), meeting the limitation of an oxo acid based metal salt.

Regarding claim 3, Murata teaches that the lubricant contains sodium tetraborate (see pp. 4-5), meeting the limitation of a borate metal salt.

Regarding claim 5, Murata teaches that the lubricant contains sodium sulfate (see pp. 4-5).

Regarding claim 6, Murata teaches that the lubricant contains sodium tetraborate (see pp. 4-5).

Regarding claim 7, Murata teaches that the lubricant contains sodium silicate (see pp. 4-5).

Regarding claim 10, Murata teaches that the lubricant contains sodium nitrate (see pp. 4-5).

Regarding claim 12, Murata teaches that two or more of sodium tetraborate and sodium sulfate can be combined (see pp. 4-5), thus meeting the limitation of the claim.

Regarding claim 13, Murata teaches that the composition comprises 5-45% solids (lubricants), the rest being water (see p. 8). Murata teaches that the ratio of oily component to solid lubricant and inorganic salt ($C/\{A+B\}$) is in the range of 0.05:1 to 1.0:1, and that the surfactant comprises 0.2 to 5% of the lubricant (see p. 8). Thus, the

Art Unit: 1793

composition of the inorganic salt overlaps the claimed range establishing a prima facie case of obviousness for that range. It would have been obvious to one of ordinary skill in the art at time of invention to have selected an amount of sodium sulfate or sodium tetraborate in the range as claimed because Murata teaches the same utility over an overlapping range. Applicant is further directed to MPEP 2144.05.

Regarding claim 14, Murata teaches that the lubricant includes sodium salt (see pp. 4-5).

Regarding claim 15, Murata teaches that an antiseptic substance (preservative) is added to the lubricant (see p. 7).

Regarding claim 16, Murata teaches that a defoamer is added to the lubricant (see p. 7).

8. Claims 4, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada in view of Murata as applied to claims 1-3 above, and further in view of U.S. Patent 1,967,830 issued to Lemmerman (hereinafter "Lemmerman").

Regarding claim 4, Harada in view of Murata does not teach wherein the lubricant comprises phosphate salts as claimed. Murata teaches that the inorganic salt may be any water soluble inorganic salt which forms a coating (see pp. 4-5).

Lemmerman teaches mold lubricants (see II. 1-7). Lemmerman teaches that the molds are wetted with a solution of phosphate and borate salts such as disodium phosphate and trisodium phosphate (see II. 21-70). Lemmerman teaches that the salts form a film on the surface of the mold that acts to lubricate the mold (see II. 21-41).

It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Harada, and to have used the liquid lubricant of Murata, because Murata teaches that the lubricant composition reduces the friction between the workpiece and the tool to reduce seizure (see p. 11), and further to have added a disodium phosphate salt as taught by Lemmerman (cited above), because Lemmerman teaches that these salts form a protective film on the mold (as cited above).

Regarding claim 9, Lemmerman teaches that sodium acetate can be used in the lubricant (see ll. 55-70).

Regarding claim 11, Lemmerman teaches that sodium carbonate can be used in the lubricant (see ll. 55-70).

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada in view of Murata as applied to claims 1-3 above, and further in view of U.S. Patent Application Publication 2003/0130138 A1 issued to Imai et al. (hereinafter "Imai").

Regarding claim 8, Harada in view of Murata does not teach wherein the lubricant comprises tungstate salts as claimed. Murata teaches that the inorganic salt may be any water soluble inorganic salt which forms a coating (see pp. 4-5).

Imai teaches an aqueous lubricant for working of metallic materials (see [0009]). Imai teaches that the composition includes a water soluble inorganic salt (see [0010]). Imai teaches that the inorganic salt may include silicates, borates, or tungstates, such as a sodium tungstate (see [0011] and [0021]). Imai teaches that the salt dries completely and forms a coating on the metal to be lubricated (see [0021]).

Art Unit: 1793

It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the method of Harada, and to have used the liquid lubricant of Murata, because Murata teaches that the lubricant composition reduces the friction between the workpiece and the tool to reduce seizure (see p. 11), and further to have added a sodium tungstate salt as taught by Imai (cited above), because Imai teaches that these salts form a protective film on the metal to be lubricated (as cited above).

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-19 are provisionally rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claims 1-21 of

copending Application No. 10/531,813. Although the conflicting claims are not identical,

they are not patentably distinct from each other because the claims of applicant's prior

Art Unit: 1793

application are silent with regards to the limitations of claim 1 of solubility of the lubricant. However, the dependent claims of said prior application and the instant claims list many of the same compounds to act as lubricant (see claims 1-10, for example). Thus, the commonly claimed lubricants must inherently have the claimed features. It would have been obvious to one of ordinary skill in the art at time of invention to have practiced the invention of claim 1 by combining the embodiments in the various claims of applicant's prior patent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER KESSLER whose telephone number is (571)272-6510. The examiner can normally be reached on Mon-Fri, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

csk